ADMINISTRATION REPORT

OF THE

PUBLIC WORKS DEPARTMENT,

(BUILDINGS AND ROADS BRANCH,)

BOMBAY PRESIDENCY,

FOR THE YEAR

1882-83.

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(BUILDINGS AND ROADS BRANCH,)

FOR THE YEAR 1882-83.

GENERAL REMARKS.

1. The total expenditure of the year was Rs. 75,38,047, as per margin. The expenditure in India was Rs. 75,37,361. In round figures, the expenditure on new Works was 33½ lákhs; on Repairs 26½ lákhs; on Establishment 13¼ lákhs; on Tools and Plant ¾ lákh, and on Barrack Department (chargeable to Military Grant) 1¼ lákhs.

In India.		Rs.
Imperial ...	... ...	16,42,690
Provincial ...	Other Public Works...	34,14,673
	Railways	14,887
Contributions	... ...	2,21,106
Local Funds	... ...	22,44,015
	Total Rs. ...	75,37,361
In England	.. ..	686
	Grand Total Rs. ...	75,38,047

I.—MILITARY.

2. The expenditure under the head Military was Rs. 10,93,253, of which Rs. 2,84,693 was for Original Works, and Rs. 4,91,580 for Repairs; the balance being for Establishment (Rs. 1,79,757), Tools and Plant (Rs. 11,569), and Barrack Department (Rs. 1,25,654).

I.—FORTIFICATIONS.

3. It has been decided to erect a fortified post at Ahmedabad, consisting of a fort wall with ditch and glacis outside, two bastions, a drawbridge and gate; but no progress has been made with it owing to want of funds.

4. The work for the protection of Manora Point at Karáchi, which was completed for a length of 226 yards, at a cost of Rs. 96,583, by the close of the year 1881-82, has fulfilled its purpose so far as it goes; one slip occurred, causing slight damage, which was made good from the repair allotment. The protection of the further length of 275 yards indicated by the Defence Committee, and estimated at Rs. 1,09,943, has been sanctioned, but the work has been deferred for want of funds.

II.—CANTONMENTS.

5. Some additional trees were planted in the vicinity of the barracks at Colába.

6. The improvements to the road at the Hudjaff or Little Pass at Steamer Point, Aden, were completed during the year at the joint cost of Government and the Municipality of Aden.

7. Certain additions and alterations were made to the Seerah Condenser Building to allow of the old condensers being replaced by new ones.

III.—ACCOMMODATION FOR TROOPS.

8. Quarters were provided over the guard-house for the Chief Warder of the Central Military Prison at Poona; and the old guard-room and cells in the old Artillery Lines were

converted into quarters for the Farrier Major Assistant at the Army Veterinary School. At Kirkee eight old single-storied barracks were dismantled, and on the site of Barrack No. 10 a school-house has been erected.

9. The hospital for British troops at Ahmedabad, described in last year's report, has been carried on during the year.

10. Lightning Conductors have been provided to all the new upper-storied barracks in the European Infantry and Royal Artillery Lines at Belgaum.

11. The additions and alterations to the pendalls occupied by the Detachment of Native Infantry at Jask have been completed. *At Jacobabad the construction of new Native Infantry Lines was continued, and at the close of the year four blocks were completed and handed over to the Regiment.

12. New Lines for a Company of Sappers and Miners at Steamer Point, Aden, are still in progress.

IV.—ORDNANCE.

13. At Bombay a platform of 3-ton concrete blocks, laid on 6" of lime and concrete bedding, to receive eight 38-ton guns, &c., was built in the Gun Carriage Factory at Colába. The quarters for Store Lascars at Siwri, and the bungalows for Warrant Officers of the Ordnance Department on the Esplanade were completed and handed over for occupation.

14. Some progress was made with the Ordnance Depôt at Ahmedabad, the ball ammunition room was completed, and the shifting room, workshop, European and Native guard-rooms were nearly finished.

15. Testing wires were attached to the Lightning Conductors of the Powder Works Buildings at Kirkee; a block of quarters was built for the lascars attached to the Magazine; the wooden floor of the Magazine having become unsafe from dry rot, a new floor of concrete and cement is being provided.

V.—COMMISSARIAT.

16. A Commissariat Office was erected at Ahmedabad, consisting of an Executive Commissariat Officer's room 25'×12', clerks' office 30'×25', record-room 25'×20', retiring room 8'-1½"×7'-6", clerks' refreshment room 25'×8'-6", with a porch in rear.

17. On the recommendation of the Sanitary Commissioner, extra ventilation and gauze-covered frames to outer doors and windows were provided in the new Bakery for European troops at Baroda.

VII.—STAFF.

18. Some progress was made with the buildings for the Sub-Marine Mining Defences at Manora, consisting of a Magazine for gun-cotton, primer room, loading room and general store room; the pier has not been commenced as funds were not available.

IX.—NAVAL AND MARINE BUILDINGS.

19. In the Dockyard at Bombay additions and alterations were made to the old pumping engine-house to fit it for the office of the Marine Survey of India; additions and alterations were made to the official residence of the Director of the Indian Marine; a portion of the extension of the factory workshops was carried out.

II.—CIVIL BUILDINGS.

20. The expenditure under this head was Rs. 23,23,648, Rs. 14,13,806 being for Original Works, and Rs. 4,59,905 for Repairs; the balance being for Establishment (Rs. 4,27,782), and Tools and Plant (Rs. 22,155).

I.—REVENUE.

21. In the Northern Konkan the works undertaken under this head were:—a Sir Kárkun's Kacheri at Revdanda; a residence with outhouses for the Abkári Inspector at Pen; lock-ups and treasury for the Mámlatdár's Kacheri at Pen; record-room for the Huzur records, and a bungalow for the Collector at Alibág.

22. Additions and alterations were made to the Custom House at Bombay for the accommodation of the offices of the Salt Department, formerly located in the Government Secretariat Building, and for the transfer of certain branches of Custom House work from one part of the building to other parts.

23. In the Kaira Collectorate the only work under this head was the provision of additional accommodation in the bungalow of the Assistant Conservator of Forests, Panch Mahâls, Godhra.

24. The Salt Department placed a sum of Rs. 1,25,000 at the disposal of the Public Works Department for the construction of bungalows and outhouses required for the use of the Officers of the Salt Department at Udu, as well as those of the Northern Frontier Preventive Line; the works were put in hand in February, and have made some progress. The tramway in connection with the extension of the Khârághoda Salt-works to Udu was completed, but the water-supply works are still in progress.

25. In the Ratnágiri Collectorate the Málvan Custom House, and the Kacheri at Khed were completed; a Custom House was erected at Jaitápur.

26. The Kacheri at Muddebihál, in the Káládgi District, was half finished at the end of the year.

27. In connection with the provision of drinking water for the Salt Works at Moach, referred to in last year's report, a lift and force pump with a three-inch barrel to deliver 692 gallons of water per hour, was purchased and fixed.

28. A site for a Mukhtyárkar's Kacheri at Shahdádpur, in the Shikárpur Collectorate, was levelled, and materials for the building were collected.

29. The foundations for a Mámlatdár's Kacheri at Islámpur in the Sátára Collectorate have been excavated, and the greater portion of material required for footing and for doors and windows, &c., collected.

30. The foundations and plinth of a Kacheri for the Mámlatdár at Pandharpur, in the Sholápur Collectorate, were completed, and the superstructure was in progress.

31. An old building at Nandurbár was utilised, by the addition of two rooms and verandah, &c., to afford accommodation for the Bhil Agency Officer. Work was in progress in connection with record-rooms at Dhulia and Amalner.

II.—POST OFFICE.

32. Under this head the only works executed were the erection of a Post Office at Miyágaon, in the Broach Collectorate, including accommodation for the private residence of the Deputy Post Master; and additions and alterations to the Post Office at Steamer Point, Aden.

III.—TELEGRAPH.

33. The work of filling up ground for a store-yard for the Government Telegraph Department, erecting new buildings thereon, and removing certain old ones from the existing yard and re-erecting the same on the new ground, and putting up a boundary wall round the State Railway and Telegraph Store-yards at Wádi Bandar was in progress at the end of the year.

IV.—GENERAL BUILDINGS.

34. Under this head the following works were undertaken during the year 1882-83:—Renewing the roof of the European General Hospital at Bombay; renewing shelves in the glassware godowns attached to the Medical Store Premises at Byculla; strengthening the Currency Office strong-room and the coin-vaults in the Arsenal at Bombay; provision of a semi-permanent shed for the accommodation of presses and compositors of the Central Press in the compound of the Old Secretariat; erection of a shed consisting of four stalls for horses, two coach-houses and two rooms for syces in rear of the New Secretariat; improvements to the Government House at Parel; provision of detached latrines in the Jamsetji Jijibhoy Hospital, and the substitution of earthenware glazed pipes for the existing masonry drain in the Hospital compound; the filling up of Dick's tank and the erection of a fountain on the reclaimed ground in the compound of the Jamsetji Jijibhoy Hospital; the separation of the Hospital from the fountain ground by a compound wall 5 feet high; provision of the remaining three blocks of servants' quarters at the Jamsetji Jijibhoy Hospital; erection of quarters for women students in connection with the Grant Medical College, Bombay; construction of godowns, &c., for the stores of the Executive Engineer, Presidency; erection of godowns and latrines for the Victoria and Albert Museum; improving the tank in the vicinity of Government House, Parel; erection of dispensaries at Umbargaon*, Bhiwndi*, Shevgaon*, Khergám*, Ankleshvar*, Vágra*, Mahudha*, Wajeria* and Háveri*; construction of quarters for the Hospital Establishment attached to the Dákor Dispensary: erection of a galvanized wire strand fence round the Residency ground at Baroda;

Note.—All those works marked with * were undertaken from Local Funds.

construction of five blocks of servants' quarters for the Government House at Mahábleshvar; erection of a bed-room pavilion with a Turkish Bath attached at Government House, Ganesh Khind; erection of a Civil Hospital at Dápoli; and the restoration and adaptation of ancient Mahomedan buildings at Bijápur.

35. In Sind the works undertaken were:—the construction of a new office for the Executive Engineer, Lower and Central Sind; completion of the additions and alterations to the Commissioner's Printing Press, and of the project for supplying water to the Government House at Karáchi; and additions and alterations to the Fauzdár's office at Karáchi.

36. At Aden a temporary building has been erected to provide sleeping accommodation at the Soldiers' and Sailors' Institute at Steamer Point, with furniture consisting of 10 cots and 2 tables and forms, and with a cook-room and latrine attached.

V.—ECCLESIASTICAL.

37. The two works under this head mentioned in last year's report, *viz.*, the Mission Church at Ahmednagar†, and the cemetery at Poona, were completed.

VI.—EDUCATIONAL.

38. At Bombay the quarters and out-houses for the Superintendent and Teacher of the Institution in the compound of the School of Art were finally completed and handed over to the school authorities; further additions and alterations were effected in the School of Art itself. Part of the clock and chiming machinery received from England for the University Clock Tower† was put up, and the whole was expected to be completed by May 1883. The west wing and central feature of the Cathedral High School† have been completed and handed over for occupation; the construction of the east wing is in progress. Painting and finishing some minor works were carried out in the building for the Alexandra Native Girls' English School.† Certain additions and alterations were effected to the David Sassoon Industrial and Reformatory Institution.†

39. In the Northern Konkan the works under this head were:—the erection of school houses for 250 and 90 boys at Mahád* and Badlápur,* respectively; and of a General Library and Reading-room at Thána.†

40. Foundations were excavated for a building for a High School at Broach.†

41. In the Kaira Collectorate the Anklao and Dákor school-houses* were completed, and three others were in progress, *viz.*, one at Borsad* for 80 girls, and two at Dohad* for 200 boys and 75 girls, respectively.

42. Materials were collected for a school-house for 150 boys at Surkhi,* in the Sánand Táluka of the Ahmedabad Collectorate.

43. A portion of the old palace at Sátára was adapted for the purposes of an Anglo-Vernacular School No. 1 and Female School; the school-house at Kameri* and those at Yellavi* and Wadgaon* were almost completed, and materials were purchased at the request of the Educational authorities for a school-house at Vaduj,* Khatáv Táluka.

44. A school-house has been built at Akluj,* in the Málsiras Táluka of the Sholápur Collectorate.

45. The accommodation in St. Mary's School for girls at Poona† has been largely increased by an extensive addition to the north end of the building; additional accommodation was provided in the School Master's quarters, Bishop High School, at Poona†, consisting of a dormitory, three bath-rooms and a laboratory, and verandahs on the east and west sides.

46. In the Násik Collectorate school-houses were built at Wani* and Sinnar.*

47. In the Khándesh District a school-house to accommodate 350 boys was in course of construction at Faizpur,* work on a similar building at Bhusával* for 250 boys was not commenced pending selection of site.

48. In the Belgaum District a school-house at Yamkanmardi* has been completed and handed over to the Educational Department. School-houses at Hippargi* and Shindgi,* in the Kaládgi Collectorate, were in progress. A school-house at Medleri,* in the Dhárwár District, was commenced and completed during the year.

VII.—JUDICIAL.

49. At Thána quarters were built for the matrons in charge of the female convicts in the Criminal Jail. The drainage system in the Criminal Jail at Ahmedabad having proved inefficient, and been pronounced by the sanitary authorities to be prejudicial to the health of the prisoners, it was resolved to adopt a new system of drainage, and the work was completed during the year under review. Increased accommodation was provided in the

Note.—All those works marked with * were undertaken from Local Funds; and those with † from Contributions.

workshops in the Deccan Central Jail at Yerrowda by the erection of three additional sheds. The old building forming the female prison in the City Jail at Poona having been found unsafe,was pulled down and rebuilt on the same plan. In the Kaira District the work of converting the lock-up into a District Jail at Godhra, affording accommodation for prisoners, Jail Establishment, and Superintendent of Police, was in progress.

50. As anticipated in last year's report the new Subordinate Judge's Court at Vágra was finally completed. The foundations were excavated and concrete mostly filled in of a Subordinate Judge's Court at Ankleshvar. The foundations and plinth of a new Subordinate Judge's Court at Bársi were completed. Nearly half the superstructure of a new Court-house at Sattána for the Subordinate Judge at Thengoda, in the Násik District, was completed. The old Brigade Mess of the Sind Horse at Jacobabad was purchased for use as a Court-house.

51. Some additions and alterations were made to the Council Hall at Poona, and increased accommodation provided in the servants' quarters and stables.

52. Police Lines were erected at Poinád, in the Kolába District, and the provision of similar accommodation for 14 men at Limbi, 10 men at Thala, and 120 men at Kaira, was in progress during 1882-83. Police Lines were erected at Návápur, in the Khándesh District. The reconstruction of the Police Lines at Sirsi, in the Kánara District, has been completed. Of the Police Lines at Belgaum, referred to in last year's report, four pendalls, and their auxiliary buildings, have been completed. Eight pendalls for the accommodation of the Police have been constructed at Karáchi.

IV.—COMMUNICATIONS.

53. The total outlay on Communications—including roads and bridges—was Rs. 33,23,003, of which Rs. 11,14,722 was for Original Works, and Rs. 15,65,174 for Repairs; the remainder being for Establishment (Rs. 6,06,266), and Tools and Plant (Rs. 36,841).

54. The works executed for the improvement of communications in the Presidency extended over a large area, and consisted of various items, the particulars of which are given in the Financial Accounts, and consequently need not be recapitulated here; but the following is a concise description of the more important works carried out in each district:—

I.—ROADS.

55. **Northern Konkan.**—The Collector of Thána, as Political Agent, entered into an agreement with the Rája of Jawhár by which Government have undertaken to construct a road 26 miles in length from the Dáhánu Road Railway Station, on the B. B. & C. I. Railway, through the Guiyad Mahál and part of the Dáhánu Tálukas, to the limit of the Jawhár territory at Talowli, on the condition that no tolls or transit dues are to be levied by the Rája on any portion of the road which passes through his territory; the first section of this road, Dáhánu to Charoti, was commenced during 1882-83. Four miles more of the road from Kalyán to Murbád* were metalled. The metalling of the road from Kelve Máhim to Pálghar* was in progress. The roads over the Chahad Khind* and that from Wowla to Ghodbandar Creek,* described in last year's report, were completed in 1882-83. A new road was constructed round the Pokran Tank*, 2,500 feet in length, with two slab drains. The first section of the road to connect the táluka town of Váda with the main Bombay and Agra Road at Bhiwndi* was in progress, as also the fourth, or the Savalgaon-Kutal section of the road from Kalyán to the Málsejghát.*

56. **Surat.**—Nearly the whole of the road from Surat to Bárdoli,* in British territory, has been opened for traffic. The Fulpára-Ushanikumár Road* has been nearly completed, only three masonry dips remaining to be done for want of funds. The work of the drainage of the road from Olpád to Kudráma* was in progress during the year under report.

57. **Broach.**—The construction of the masonry dips for facilitating the traffic on the Dholia-Khari, on the Jambusar and Tankária Road,* described in last year's report, was completed. Work was in progress on the road, 3 miles long, from Ankleswar to Borelbhata.* On the road from Broach to Dehej,* which is being carried out by contract, progress was retarded partly owing to delay in the land being handed over to the Public Works Department, and partly on account of scarcity of labour in consequence of the village people being engaged in collecting cotton crops.

58. **Kaira.**—The work of improving and metalling the British and Baria sections of the road from Godhra to Jhálod was completed, and the road opened for traffic. Con-

Note.—All those works marked with * were undertaken from Local Funds.

siderable progress was made on the road from the Dákor and Kapadvanj line towards Baya and Morassa, which is the first section of a comprehensive scheme for joining Morassa with the B. B. & C. I. Railway. The road from Vásna to the Sábarmati River* was completed and opened for traffic. Work was nearly completed in metalling the Nadiád-Mahudha section of the road from Nadiád to Kapadvanj,* and the road opened for traffic. The British portion (3¼ miles) of the road from Ánand to Petlád* was nearly completed, but the section in the Baroda territory* is in a very backward state. Six miles of metalling were completed on the old and new Vásad and Borsad road.* All the masonry works and nearly the whole of the bridge over the Khári River on the road from the Báreji Railway Station to Naika,* described in last year's report, were completed in 1882-83. The embanked and drained road between the Nadiád Railway Station to the town* was practically completed. Broken stone for metalling certain portions of roads in the Kaira Collectorate,* where the traffic is heavy, was collected during the year, and the work will be pushed on during 1883-84. The metalling of the road 1½ miles long at Godhra, joining the Godhra and Dohad Road,* was completed and opened for traffic. Work was in progress on the road from the Railway Station at Godhra to the Kálol Road,* including a masonry bridge of 7 spans of 20 feet each. Three-fourths of the metalling of the main road in the town of Godhra, which is being carried out at the cost of the Municipality, have been done during the year under report.

59. **Ahmedabad.**—The metalled road from Sánand and Sarkhej to the Sábarmati Railway Station,* which was commenced in 1878-79, was completed in 1882-83. Some of the culverts, drains and dips on the road from Dhandhuka to the Ránpur Railway Station,* described in last year's report, have been constructed, and the earthwork nearly completed.

60 **Ka'nara.**—Improvements, consisting of clearing away the jungle, cutting in rock, embanking, constructing drains, and collecting road-metal, were effected on the Arbyle Ghát on the road from Kárwár to Hubli. About 16 out of 22 miles of the road from Siddápur to Nilkund* were completed.

61. **Dha'rwa'r.**—The portion, from Dambal to Mundargi, of the road from Gadag *vid* Dambal to Hesrur was in progress; three bridges, three culverts and nine drains were completed during the year. The portion between the Nágsamudra and Katmuchgi of the Sirsi and Bádámi Road* has been entirely finished. The other two portions between Abigeri and Ron* and Katmuchgi and Abigeri* are approaching completion. The portion between Mundargi and Virápur Pass of the Masur and Mundargi Road* has been widened, and the gradients on the Pass have been eased off. The work of constructing improved crossings to the seven nálas on the road between Nágsamudra and Katmuchgi* was completed during the year. Ten culverts have been constructed on the Havanur and Samagi Road.* A concrete causeway across the Bennihála Nála, near Navalgund, has been erected close by the site of the bridge formerly proposed to be built.

62. **Belgaum.**—On the road from Belgaum to Panchgaon, where a large quantity of metal has been collected, a large bridge has been constructed at Sutgatty, and rest-houses were erected at Sutgatty and Halki. The second section, from Gybikhind to Dájipur, of the road from Nipáni to Dájipur, has been completed, with the exception of a small culvert. The bridges and drains on the first section, from Nipáni to Gybikhind, have been completed. Muram has been collected for improving the road from Bágevádi to Saundatti.* Dharamshálas have been built at Manoli,* Astoli* and Konur.*

63. **Kala'dgi.**—Two bridges and four drains have been completed on the Kajidoni-Bágalkot section of the road from Vengurla to Hungund* *vid* the Amboli Ghát. The whole of the embankment, collecting and spreading muram, provision of paved dips, &c., have been carried out on the Bijápur-Honvád section of the road from Mirya Bay to Shindgi. Nine miles of the crossing of the Krishna River at Kolhar, on the Sholápur and Hubli Road, have been improved. The road from Bágalkot to Hungund* is approaching completion. A new twin ferry boat, with wire rope, iron floats, &c., was provided for crossing the Krishna River at Kolhár. The Masjid near the Sultán Mahomed's mausoleum at Bijápur is being converted into a travellers' bungalow.

64. **Ratna'giri.**—The Ambághát Road has been completed and opened for traffic.

65. **Sa'ta'ra.**—The road between Shirval and the Varandha Ghát has been considerably improved during the year. Further improvements were made to the gradients of the Sátára-Tásgaon Road,* and road dams constructed in the 4th and 6th miles. Progress was being made during the year under report on the Malhárpeit-Pandharpur Road.* The whole of the improvements to the Wái-Shirgaon and Shergaon Khind Road* were completed. The Peth-Sángli* and Karád-Tásgaon Roads,* described in last year's report, were considerably improved during 1882-83.

66. **Poona District.**—The improvements to the Khed-Bhimáshankar Road*, described in last year's report, were completed. A small park road, 4,357 feet in length, has been constructed from the main road near the Telegraph Office in the Government House enclosure at Ganesh Khind, to join the Kirkee Road, near the railway level crossing.

Note.—All those works marked with * were undertaken from Local Funds.

The Mondva Distillery Road has been improved by the construction of a masonry dip across the large muddy nála near the railway.

67. **Shola'pur.**—The Bársi-Yedsi Road has been improved by spreading metal on it and constructing 25 road drains and 1,200 cubic feet of retaining wall. Seven miles out of the 21 of the Sholápur-Tákli Road have been improved.

68. **Ahmednagar.**—In this Collectorate the Rajur-Bari section of the Loni Bari Road* and the feeder road from Pimpri to Shrigonda* were completed, and progress was being made in effecting improvements to the roads from Sanganner to Kalas* and from Kalas to Ankola.* The feeder roads from the village of Vámbori to the Vámbori Railway Station; from Belwandi to Dhond,* from Loni to Belápur; from Belápur town to the Railway Station; from Ráhátta to Chitali;* and from Kopargaon to Signápur Station were under construction.

69. **Na'sik.**—Cuttings, embankments and six retaining walls were completed on a muram road 16 feet wide over the Nanasi Ghát. Work was in progress on the Násik Dindori and Kalvan Road,* mentioned in previous reports, and the road as far as the Iwat Bari has been opened for traffic. The Obhada Bari Ghát Road* was almost completed during the year under review, and is now open for traffic.

70. **Kha'ndesh.**—In this Collectorate very little was done in the construction of a causeway over the River Pánjhra, on the Dhulia-Sakri section of the Dhulia and Surat Road, owing to the allotment for the work having been made late in the year. Work was in progress in metalling 12 miles of the Dhulia and Chálisgaon Road. The work on the road from Dhulia to Pimpalner* was suspended for some time until it was decided whether or not the road should be carried to Pimpalner. The embankment of earth, muram ballasting and two culverts and drains were completed on the Dondaicha to Ramala, or third section, of the road from Songir to Nandurbár.* The work on the second section of the road from Jalgaon to Dharangaon* consisted of earth embankments, cutting in earth, muram-ballasting, masonry gutter, stone-cutting, six drains and culverts, &c.; and work was almost completed in improving and deviating the remaining portion of the Bhadgaon Model Farm Road.*

II.—BRIDGES.

71. **Surat.**—Half of the work of constructing a timber top bridge of 50 feet waterway and 10 feet broad, to allow one cart to pass, on the road from Variao to Chapra Bhati to the Railway Station at Amroli,* was done during 1882-83, and it is expected that the bridge will shortly be completed.

72. **Broach.**—Materials were being collected for a masonry bridge of six spans of 60 feet across the Bhuki tidal creek on the Broach and Dehej Road.*

73. **Kaira.**—Of the two bridges over the Vakadi and Dohi Rivers, on the road from Godhra to Jhálod, described as being under construction in last year's report, that over the latter has been nearly completed, and it is hoped that the one over the former will be thrown open for traffic in 1883-84; great progress was made in the construction of a bridge and drains on the road from Kálol to Chámpáner.* Materials were being collected for the construction of bridges and drains on the Godhra-Shera section of the Godhra and Lunawára Road,* and on the Godhra and Dohad Road.*

74. **Ahmedabad.**—The wooden piled bridge across the Durid Creek, on the Gogha-Dhandhuka Road, which was begun last year, was completed during the year under review.

75. **Ka'nara.**—The Benihalla Bridge, on the Dhárwár and Kumta Road, which was in progress last year, has been completed. The bridge over the Nugi Nála, on the road from Kadra to Shetowna, was more than half finished. The wood-work of the Pujgiri Nála Bridge,* on the Coast Bridle Road near Ankola, was renewed.

76. **Dha'rwa'r.**—The nature of foundations for a masonry bridge proposed to be built over the Malprabha River near Mugutkhán, Hubli, has been sufficiently accurately ascertained for the purpose of preparing the project.

77. **Belgaum.**—A bridge over Nála No. 5 and three slab drains on the road between Udgaon and Miraj have been constructed. Bridge No. 517 on the Belgaum and Vengurla Road, *viá* the Parpoli Ghát, has been reconstructed. Materials have been collected for the construction of bridges over the Jungwad and Moglayhál Nálas, on the Belgaum and Lingunmutt Road.

78. **Ratna'giri.**—The bridge over the Golowli Nála, on the Ratnágiri and Chiplún Road, noticed in last year's report, has been completed and opened for traffic. At Hatkambe, about 9 miles from Ratnágiri, two wooden bridges, one of 24 feet span and the other of two spans of 24 feet each, were commenced, and the masonry work completed. A similar bridge of two spans of 32 feet each over the Kajavi Nála, on the Hatkambe and Dájipur Road,* was commenced; the masonry work has been nearly completed.

79. **Shola'pur.**—Steps were being taken to complete a bridge of 14 openings of 25 feet span over the Mela Nála, on the Poona and Sholápur Road, the piers of which have been

Note.—All those works marked with * were undertaken from Local Funds.

standing for years, and it is expected that the structure will be available for traffic shortly. Work was well advanced on the piers of a bridge of 5 openings of 30 feet across the Karha River at Sásvad, which has been undertaken to give access to the Mámlatdár's Kacheri, communication with which is impossible during high floods.

80. **Ahmednagar.**—In this district work was in progress during 1882-83 on a bridge over the Sita Rapid*.

81. **Shika'rpur.**—The two bridges over the Sháh Hamir, on the Lárkhána and Rato-dero and Sujáwal Roads,* mentioned in last year's report, and one over the Sukkur Canal on the Sukkur and Rahuja Road,* were completed during the year under review.

82. **Jacobabad.**—In this district the only work under this head was a bridge over the Mirzawah, on the road from Jacobabad to Thul, which was completed during 1882-83.

RAILWAY SURVEYS.

83. Some outlay (debitable to Railways, Provincial) was incurred in surveying lines of Railway from Broach to Jambusar; Bárdoli to Songhad and thence to Nandurbár; Anand *vid* Pitlad to Piploe; and Surat to Nandurbár. The progress made with these surveys during the year under review has been described in the Administration Report of the Railway Department.

V.—MISCELLANEOUS PUBLIC IMPROVEMENTS.

84. Under this head the total expenditure was Rs. 7,83,256, of which Rs. 5,19,353 was for Original Works, and Rs. 1,30,230 for Repairs; the balance being for Establishment (Rs. 1,25,697) and Tools and Plant (Rs. 7,976).

I.—MUNICIPAL WORKS.

85. **Northern Konkan.**—The new markets at Thána,† commenced last year and fully described in that year's report, were completed during 1882-83. The work in connection with the water-supply to the town of Roha, in the Kolába Collectorate, also fully described in the last year's report, was likewise completed during 1882-83 (*Municipal Funds*).

86. **Surat.**—One of the groynes constructed in the River Tápti, in municipal limits, to protect its bank on the Surat side, has been raised and extended during the year under report.†

87. **Kaira.**—Six wells for the water-supply of this district at Páli,* Khánkuva,* Virsad,* Ashipura,* Dákor and Kapadwánj Road* were completed, and those at Sili,* Jurguva,* Khambhaluj* and Sunda* were in progress during 1882-83. Improvements to two out of thirteen tanks at various places in this district were completed, and the rest were in progress with the likelihood of most of them being completed during 1883-84.

88. **Dha'rwa'r.**—Improvements were effected to the tanks at Nadgunki* and Kalkeri.*

89. **Belgaum.**—In this district improvements were effected to the tank at Kagdul,* in the Parasgad Táluka, and the construction of a well at Kopoli,* in the Khánápur Táluka, was in progress.

90. **Kala'dgi.**—The whole of the works in connection with the restoration of the Begam Tank at Bijápur, alluded to in last year's report, was entirely completed during 1882-83.

91. **Sa'ta'ra.**—The scheme for supplying the town of Sátára with water, mentioned in the previous report, was in progress during the year (*Municipal Funds*).

92. **Ahmednagar.**—A special grant of Rs. 15,000 was sanctioned for improving the water-supply in this Collectorate, and about 25 works were taken in hand, which consisted of building new wells, re-constructing old ones, and effecting certain repairs to the existing wells and ziras in the beds of the rivers; but 21 wells remained unfinished owing to failure in getting water at the estimated depths and other difficulties.

II.—HARBOUR IMPROVEMENTS.

93. **Kara'chi Harbour Works.**—Though the maintenance and repairs of the Manora Breakwater devolve now on the Karáchi Harbour Board, a brief notice of its state may as usual be given here. The Breakwater stood the south-west monsoon of 1882 with-

Note.—All those works marked with * were undertaken from Local Funds; and those marked with † from Contributions.

out material injury, as it has now done for eight successive monsoons, a small gap only having been made in the more recently executed concrete capping. This addition to the structure is being gradually continued as means admit, so as to make up for settlement, which though now very slight, still continues on the outer half length. The opening of the centre joint for two short spaces, which is of long standing, has not increased, and the slanting capping on the sea-side appears unquestionably a success, and is being continued as funds admit. The Beacon on the outer end of the Breakwater has been improved by the substitution of a long spar of more than double the height of the rails formerly fixed there, and an intermediate spar has also been erected in view to a possible arrangement for running out a light by a wire rope.

94. The dredging of the harbour was carried on more vigorously than usual during the year under report (being the fifth since the annual grant of one lákh was established), as an extra grant of Rs. 80,000 was made for dredging and other expenses connected with the addition to the dredging fleet of the powerful Dredger *Albuquerque* transferred from the Madras Government. This vessel arrived in May, and has since done good work, which will be increased when the additional buckets indented on from England enable her to be altered for deeper dredging. As it is, her out-turn of work is far superior to that of the Dredger *Nearchus*. During the year under report 46,900 tons were dredged in rectification of the entrance channel, and 447,337 tons within the harbour. Of this last quantity 13,250 tons were dredged on the east side of the Deep Water moorings, near outer end of the East Pier; 81,744 tons in the channel between the Manora and Keamari anchorage; 206,377 tons in the Keamari anchorage; and 145,966 tons in the "New Channel" for diversion of China creek waters, of which last 60,992 tons were provided for by the Karáchi Harbour Board for special deepening of the approach to the Native Jetty. The average cost of the dredging was 5 annas 2 pies per ton, which is a slight reduction on the rate of the previous year, and which, with the help of the *Albuquerque*, it is hoped still further to reduce in future, though not so low as it might be if the additional lighterage plant applied for could have been sanctioned. The booked expenditure during the year on "Dredging of the Harbour" was Rs. 1,68,177, which included outlay on completing and working the Repairing Dock, and on the quarrying from Deep Water Point, by divers, of 727 tons of rock, which were deposited in the West Training Groyne. Also 12,885 tons of rubble stone from the quarries were deposited during the year in the West Training Groyne, which was extended 1,000 feet, making a total of 3,900 out of 7,340 proposed.

95. The cost of the harbour surveys (except fixed Public Works Department Establishment) is now, as last year, borne by the Karáchi Harbour Board, but the recent periodical survey shows a general continuance of improvement, and good prospect of more, though not without large aid from dredging. This is absolutely necessary to satisfy the growing requirements of the trade, by enlargement of the Deep Water space of the harbour, as well as to keep down the disturbing influences exerted by the Deep Water Point, and by the abrupt ending of the East Pier.

96. **Northern Konkan.**—With a view to accommodate all the inland salt traffic of the Bombay Harbour, Panvel and Kalyán, the Chedni Bandar is being extended on the north side, and the existing approach is increased to admit of the G. I. P. line of rails—which is already laid to its commencement—being laid down on it with a siding. This is being done at the cost of Port Funds, aided by a small grant from Imperial Funds.

97. **Aden.**—The Maala Pier was widened at the cost of Port Funds, and the present flat chunam roof of the godown at Maala is being re-placed by corrugated iron sheeting.

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